He died of the disease of the heart, on the 10th of November, 1874; at which time he was within fifteen days of being eighty years old. He was buried in the burial-ground attached to the Friends' Meeting House, at Wrightstown, Bucks County. His widow and one son constitute his surviving family.

A number of the facts contained in this brief biographical notice, have been communicated to the writer by Mr. Trego's son, Mr. F. A. Trego, who has sought among his father's papers since his death, for his private journal, but has not been able to find it.

In looking back over the life of Mr. Trego, we see that while it was not distinguished by any very remarkable incidents, he has left behind him a good record.

He maintained the good reputation of the race from which he was descended; and living to the age of nearly four score years, he was useful to the end of his career, and as the faithful Treasurer of the American Philosophical Society, and the collector and disburser of its funds for nearly a quarter of a century, his memory well deserves to be honored by the members of the Society, as that of a good citizen, a lover of science, and a faithful steward of the talents with which he was intrusted.

ANALYSES OF ROCKY MOUNTAIN COAL.

By J. Blodget Britton and C. M. Cresson.

(*Read at a Meeting of the American Philosophical Society, Nov.* 6, 1874.)

The four coals from east of the Rocky Mountains and on the line of the Union Pacific Railroad, exhibited at the meeting held on the 6th ult., I have since analyzed for metallurgical purposes, with the following results:

Carbon Coal, from the Mine at Carbon.

(*Sample consisted of several pieces, and weighed* 12 lbs.)

Water	12.50
Volatile combustible matter	35.47
Fixed carbon	44.96
Ash	7.07
	100.00
One hundred parts of the raw coal gave of coke	52.03

The coke was composed of

Carbon	86.42
Ash	13.58
	100.00

Including sulphur 1.03
Phosphorus .....trace

Coal from Alury Mine.

(*Sample consisted of several pieces and fine stuff, and weighed* 21½ lbs.)

Water	12.95
Volatile combustible matter	32.54
Fixed carbon	44.56
Ash	9.95
	100.00

One hundred parts of the raw coal gave of coke..... 54.51

The coke was composed of

Carbon	81.75	
Ash	18.75	
	100.00	Including sulphur .29
		Phosphorus..... .04

Coal No. 3, from Mine at Rock Spring.

(*Sample consisted of a single piece, and weighed* 18½ lbs.)

Water	13.40
Volatile combustible matter	35.25
Fixed carbon	49.81
Ash	1.54
	100.00

One hundred parts of the raw coal gave of coke..... 51.35

The coke was composed of

Carbon	97.01	
Ash	2.99	
	100.00	Including sulphur .63
		Phosphorus..... .02

Coal from Excelsior Mine, at Rock Spring.

(*Sample consisted of several pieces and fine stuff, and weighed* 16½ lbs.)

Water	10.10
Volatile combustible matter	36.76
Fixed carbon	51.03
Ash	2.11
	100.00

One hundred parts of the raw coal gave of Coke..... 53.14

The coke was composed of

Carbon	96.03	
Ash	3.97	
	100.00	Including sulphur .92
		Phosphorus..... trace

The coals swelled very little during the coking. When powdered and heated they agglutinated. The cokes resemble in appearance the kind produced from the average bituminous coals of Western Pennsylvania.

A portion of the sample from Carbon Mine was subjected for an hour and a half to a temperature of 178° F., and lost in weight 5.72; subjected for one hour more to a temperature of 280° F., the loss was increased to 7.31; and again for two hours more to the same temperature, the whole loss was found to be 7.55. Another portion of the same sample was then subjected for three hours to a temperature of 500° F., and the loss was 9.55. The watery vapor was condensed in a cold glass tube, the tube was carefully weighed and then the water was evaporated; the tube when cold was weighed again, and from the loss the weight of water was ascertained. The coal was then weighed, and its loss was found to correspond very nearly with the weight of the water. A portion of the same coal was immediately put into another tube and subjected for a moment to a low red heat, when more water passed off and collected in the cold part of the tube; subjected for another moment to a little higher temperature, a dark brown oil passed off and condensed on the top, and ran down the sides of the tube in the space between the coal and water. The oil emitted a strong odor, the same as the oils produced by distillation from the brown friable lignites of Southern Arkansas and Texas. The other three coals produced water and oil in like manner at a low red heat.

These coals are not lignites, and I believe that if dried at a temperature of about 500° F., or a little above, will answer for puddling iron and the purposes of the blacksmith, and that the cokes will answer for producing pig iron in the blast furnace.

J. BLODGET BRITTON,
Iron Masters' Laboratory.

They were examined for steam and illuminating gas purposes by Dr. C. M. Cresson. The following is his report:

OFFICE AND LABORATORY,
No. 417 *Walnut Street, Philadelphia.*

Coals marked "Carbon Mine," "Excelsior," "Mine No. 3" and "Alury," have been examined as to their fitness for the production of steam, and suitability for producing illuminating gas, Pittsburgh (Pennsylvania Gas Coal) being used as the standard of comparison.

The following results have been obtained:

Coal.	*Pounds of Water evaporated by one pound of Coal.*	*Gas to the Pound of Coal when all of the Gas is worked off.*	*Value of Five Cubic Feet of Gas in Candles when all of the Gas is worked off.*	*Value of Five Cubic Ft. when the amount is limited to 4.4 Cubic Feet per Pound of Coal.*
Carbon Mine.....	13.42	5.17 Cu. Ft.	9.52	10.30
Excelsior	13.53	5.54 " "	11.80	12.00
Mine No. 3.....	12.65	6.06 " "	7.80	12.30
Alury	12.77	5.77 " "	6.90	9.
Penn. Gas Coal....	14.67	5.2 " "	12.	14.

The heating power of these coals compares favorably with that had from the majority of semi-bituminous and many bituminous coals. They should be burned in boilers adapted for use with bituminous coals.

As gas coals, Excelsior and Mine No. 3 possess fair qualities. They yield a very large amount of gas, and with a little enrichment (either by the admixture of cannel or a small amount of oils) will prove serviceable to the gas-maker.

If these samples are from outcrop or from near the surface, it will most likely be found that the quality of the coal will improve, as it is obtained from a greater depth; so that without any limitation in the quantity of gas yielded, they will compare more favorably with the eastern bituminous coals for gas purposes. Respectfully,

CHARLES M. CRESSON, M. D.

SYNOPSIS OF THE VERTEBRATA OF THE MIOCENE OF CUMBERLAND COUNTY, NEW JERSEY.

By E. D. Cope.

(*Read before the American Philosophical Society, Feb.* 5, 1875.)

The marls of the Miocene period appear in a limited area in Southwestern New Jersey, chiefly in Cumberland County. Their mineral character is similar to that of the marls of the same age in the Southern Atlantic States, viz.: a calcareous clay containing small percentages of phosphate of lime and potash. In New Jersey its strata abound in shells, and Vertebrate remains are rather common. Timothy A. Conard, the father of our Marine Tertiary Geology, as early as 1832, in his "Fossil Shells of the Tertiary," called it the upper marine formation, and stated that it "first appears in New Jersey, southeast of Salem, and continues throughout all the States south of this." Professor Rogers, in his Geology of New Jersey, published in 1840, p. 293, calls the beds Tertiary, and remarks "though this proposition (of shells) might rather imply an Eocene date for the deposit .... while on the other hand all the species are either identical with those of the Miocene of Maryland and Virginia, or exhibit a close analogy of form." In a memoir read before the American Philosophical Society, and published in the volume of Transactions for 1837, p. 334 Prof. Rogers, assigns the corresponding beds in Eastern Virginia to the Miocene period. The evidence derived from the vertebrate fossils does not conflict with this view. A full account of the geology of the formation as it appears in New Jersey, is given by Prof. G. H. Cook, in his report of the Geological Survey of New Jersey, 1868.